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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,543	09/15/2003	Shingo Saigo	8040-1050	9065

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EXAMINER

KIM, RICHARD H

ART UNIT PAPER NUMBER

2871

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/661,543	Applicant(s) SAIGO ET AL.	
	Examiner Richard H. Kim	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 4-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/15/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moon et al. (US 2002/0093614 A1) in view of Choo et al. (US 6,642,979 B2).

Referring to claims 4 and 5, Moon et al. discloses a method comprising the steps of forming a first insulation film on the thin film transistor (Fig. 7B, ref. 122), forming first contact holes for connecting the common wiring and the common electrode to each other (Fig. 7C, ref. 135, 117), and second contact holes for connecting the thin film transistors and the pixel electrode to each other (Fig. 7C, ref. 133, 129), forming the common electrode connected to the common line via the first contact hole (135, 117), and forming pixel electrodes connected to the thin film transistor via the second contact hole (133, 129). However, the reference does not disclose forming a second inorganic insulating film on the first inorganic insulating film, forming third contact holes so as to be superposed on the first contact holes, and fourth contact holes so as to be superposed on the second contact holes, forming a conductive film on the second inorganic insulating film; and using at least dry etching, wherein the third contact holes are formed inside the first contact holes while the fourth contact holes are formed inside the second contact holes.

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Choo et al. (US 6,642,979 B2) discloses a second inorganic insulating film on a first inorganic insulating film, forming fourth contact holes so as to be superposed on the second contact holes (131), forming a conductive film on the second inorganic insulating film (117), wherein the fourth contact holes are formed inside the second contact holes (131).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ methods of disclose forming a second inorganic insulating film on the first inorganic insulating film, forming third contact holes so as to be superposed on the first contact holes, and fourth contact holes so as to be superposed on the second contact holes, forming a conductive film on the second inorganic insulating film, wherein the third contact holes are formed inside the first contact holes while the fourth contact holes are formed inside the second contact holes since one would be motivated to provide added insulation to thereby prevent short-circuiting between two conductive elements. Furthermore, even though Choo et al. does not disclose the third contact holes, adding another insulating layer in order to prevent short-circuiting between two conductive elements as shown in Choo et al. is a well known technique. Therefore, employing the teachings of Choo et al. to Moon et al. in order to provide added insulation to thereby form a third contact hole would have been obvious. Furthermore, dry etching is a well known process in the art to precisely fabricate contact holes.

Referring to claim 6, Moon et al. discloses a method wherein a thickness of the insulating film is set to be greater than at least a thickness of a portion of the insulating film where contact holes for connecting the common wiring and the common electrode to each other are formed (Fig. 7C, ref. 130). The thickness of the insulating film (130) taken lengthwise at the hole portion is less than the thickness of the insulating film when taken along other portions.

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However, the reference does not disclose that the insulation layer is inorganic and that the hole is made by dry etching.

Choo et al. discloses that the insulating layer is inorganic (col. 8, ref. 34-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the insulating layer to be inorganic since one would be motivated to provide effective insulation between conductive layers. Furthermore, dry etching is a well known process in the art to precisely fabricate contact holes.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard H. Kim whose telephone number is (571)272-2294. The examiner can normally be reached on 9:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Richard H Kim
Examiner
Art Unit 2871

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RHK



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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2871